

JUL 12 2004

Approved for use through 07/31/2006. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

DAC #

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**PETITION FOR REVIVAL OF AN APPLICATION FOR PATENT ABANDONED  
UNINTENTIONALLY UNDER 37 CFR 1.137(b)** Docket Number (Optional)  
RD-28,383-3

First named inventor: Christopher Judson Hardy

Application No.: 09/681,406

Art Unit: 3742

Filed: March 30, 2001

Examiner: Daniel Leon Robinson

Title: ROBUST CORONARY MR ANGIOGRAPHY WITHOUT  
RESPIRATORY NAVIGATOR

**RECEIVED**

JUL 15 2004

**OFFICE OF PETITIONS**

Attention: Office of Petitions

Mail Stop Petition

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

FAX: (703) 872-9306

NOTE: If information or assistance is needed in completing this form, please contact Petitions  
Information at (703) 305-9282.

The above-identified application became abandoned for failure to file a timely and proper reply to a  
notice or action by the United States Patent and Trademark Office. The date of abandonment is the day after the  
expiration date of the period set for reply in the Office notice or action plus an extensions of time  
actually obtained.

**APPLICANT HEREBY PETITIONS FOR REVIVAL OF THIS APPLICATION**

NOTE: A grantable petition requires the following items:

- (1) Petition fee;
- (2) Reply and/or issue fee;
- (3) Terminal disclaimer with disclaimer fee --required for all utility and plant applications  
filed before June 8, 1995; and for all design applications; and
- (4) Statement that the entire delay was unintentional.

1. Petition fee

Small entity-fee \$ \_\_\_\_\_ (37 CFR 1.17(m)). Applicant claims small entity status. See 37 CFR 1.27.

Other than small entity - fee \$ 1330.00 (37 CFR 1.17(m))  
PLEASE CHARGE DEPOSIT ACCOUNT 07-0868 \$1,330.00 FOR PETITION FEE.

2. Reply and/or fee

A. The reply and/or fee to the above-noted Office action in

the form of \_\_\_\_\_ (identify type of reply):  
 has been filed previously on \_\_\_\_\_.

is enclosed herewith.

B. The issue fee of \$ \_\_\_\_\_.

has been paid previously on \_\_\_\_\_.  
 is enclosed herewith.

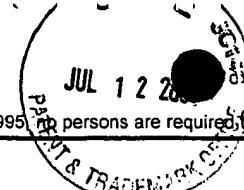
[Page 1 of 2]

This collection of information is required by 37 CFR 1.137. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

07/14/2004 AWONDAF1 00000130 070868 09681406

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JUL 15 2004

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## 3. Terminal disclaimer with disclaimer fee

Since this utility/plant application was filed on or after June 8, 1995, no terminal disclaimer is required.

A terminal disclaimer (and disclaimer fee (37 CFR 1.20(d)) of \$ \_\_\_\_\_ for a small entity or \$ \_\_\_\_\_ for other than a small entity) disclaiming the required period of time is enclosed herewith (see PTO/SB/63).

## 4. STATEMENT: The entire delay in filing the required reply from the due date for the required reply until the filing of a grantable petition under 37 CFR 1.137(b) was unintentional. [NOTE. The United States Patent and Trademark Office may require additional information if there is a question as to whether either the abandonment or the delay in filing a petition under 37 CFR 1.137(b) was unintentional (MPEP 711.03(c), subsections (III)(C) and (D))].

**WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**

7/1/04

Date

Jean K. Testa

Signature

## Telephone

Number: 518 387-5115Jean K. Testa, Esq.

Typed or printed name

General Electric Global Research K-1 3A62

Address

One Research Circle, Niskayuna, NY 12309

Address

Enclosures:  Fee Payment Reply Terminal Disclaimer Form Additional sheets containing statements establishing unintentional delay Other: Authorization to charge any fees to deposit account no. 07-0868

## CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR 1.8(a)]

I hereby certify that this correspondence is being:

deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

transmitted by facsimile on the date shown below to the United States Patent and Trademark Office at (703) 872-9306.

7/8/04

Date

Mary M. McNamara

Signature

Mary M. McNamara

Type or printed name of person signing certificate



I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner of Patents and Trademarks, Washington, D.C. 20231, on

7-8-04  
(Date of Deposit)

Wen H. Kao  
717104  
(Signature)

(Date of Signature)

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JUL 15 2004

OFFICE OF PETITIONS

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of  
Yudong Zhu et al.  
Serial No. 09/681,406

: Group Art Unit: 3742  
: Examiner: D. Robinson

Filed: March 30, 2001 : Notice of Abandonment June, 15, 2004  
For: ROBUST CORONARY MR ANGIOGRAPHY WITHOUT RESPIRATORY  
NAVIGATION

PETITION TO WITHDRAW HOLDING OF ABANDONMENT UNDER 37 C.F.R. 1.137(b)

Honorable Assistant Commissioner of Patents and Trademarks,  
Washington, DC 20231

SIR:

Applicant, by his attorney, hereby respectfully requests that the holding of abandonment be withdrawn, for the reasons set forth below.

A Notice of Abandonment that was mailed June 15, 2004 indicated that Applicant had not responded to an Office Action dated Dec. 3, 2003. Applicant respectfully submits the delay in responding to the Office Action of 12/3/03 was unintentional. Applicant's undersigned attorney erroneously believed that she submitted an amendment in response to the 12/3/03 via facsimile. However, upon receipt of the Notice of Abandonment, Applicant's attorney noticed the amendment for another application had been erroneously sent for the present application.

Enclosed for the Commissioner's consideration are the following:

1. A copy of the Auto-Reply Facsimile Transmission dated 2/3/2004 that accompanied Applicant's incorrect reply to the 12/3/2003 Office Action. The transmission contains the Patent

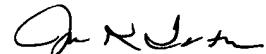
Office receipt confirmation date of 2/3/2004.

2. A reply to the 12/3/2003 Office Action.

Under 37 C.F.R. 1.137(b), there is a fee required for this petition. The Assistant Commissioner is authorized to charge any additional fees required under 37 C.F.R. 1.16 or 1.17 or 1.137 to Deposit Account No. 07-0868.

In view of the foregoing facts and verified showing thereof, it is respectfully submitted that Applicant's attorney believed she submitted a timely reply to the Office Action dated December 3, 2003 and that the Patent Office received Applicant's reply. However, upon receipt of the Notice of Abandonment, it became apparent that the incorrect response was sent erroneously and unintentionally. Accordingly, it is respectfully requested that the reply submitted herewith be considered and that the holding of abandonment in the June 15, 2004 Notice of Abandonment be withdrawn. It is also respectfully requested that the appended reply to the Notice now be considered to place this application in condition for allowance.

Respectfully submitted,

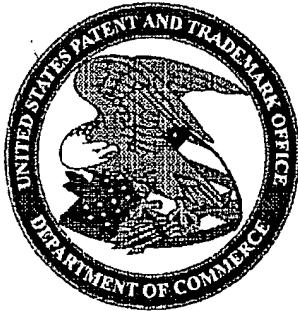


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Telephone: (518) 387-5115 or (518) 387-7122

July 1, 2004

## Auto-Reply Facsimile Transmission



TO: Fax Sender at 5183877751  
Fax Information  
Date Received: 2/3/2004 8:32:30 AM [Eastern Standard Time]  
Total Pages: 5 (including cover page)

**ADVISORY:** This is an automatically generated return receipt confirmation of the facsimile transmission received by the Office. Please check to make sure that the number of pages listed as received in Total Pages above matches what was intended to be sent. Applicants are advised to retain this receipt in the unlikely event that proof of this facsimile transmission is necessary. Applicants are also advised to use the certificate of facsimile transmission procedures set forth in 37 CFR 1.8(a) and (b), 37 CFR 1.6(f). Trademark Applicants, also see the Trademark Manual of Examining Procedure (TMEP) section 306 et seq.

Received  
Cover  
Page  
=====>

FEE 03 2034 09:18 FR GE CORPORATE R-D		5183877751 TO E17038729306	P.01/05
Serial No. 09/838,634		RD-28,098	
To FAX: 703 871 9306			
I hereby certify that the paper is being Facsimile transmitted to the Patent and Trademark Office on the date shown below.			
3/3/04 (Date of Transmission)		3/3/04 (Date of Signature)	
Signature: 			
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE			
Inventor: Zhu et al.		Group Art Unit: 3742	
Serial No.: 09/838,634		Examiner: Robinson	
Filed: April 19, 2001		Response to Paper No.: 3	
Title: METHOD FOR MR IMAGING WITH AN ARRAY OF RF COILS			
<u>AMENDMENT</u>			
Mail Stop Non-Fee Amendment Commissioner for Patents P.O. Box 1450 Alexandria, VA 2213-1450			
Sir:			
In response to the Office Action mailed on December 03, 2003, Applicant respectfully requests consideration of the following remarks:			
Remarks begin on page 2 of this correspondence.			

PAGE 15 \* RCVD AT 2/3/2004 8:32:30 AM [Eastern Standard Time] \* SYR USPTO-EXIF-12 \* OUNIS:8729306 \* CSID:5183877751 \* DURATION (min:ss):01:40

	DATE	TIME	TO/FROM	MODE	MIN/SEC	PGS	JOB#	STATUS
01	02/03	09:18	USPTO	EC--S	01'15"	005	090	OK

Serial No. 09/838,634

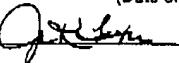
RD-28, 098

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Trademark Office on the date shown below.

3/3/04

(Date of Transmission)

Signature 3/3/04

(Date of Signature)

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor: Zhu et al.

Serial No.: 09/838,634

Group Art Unit: 3742

Filed: April 19, 2001

Examiner: Robinson

Title: METHOD FOR MR IMAGING  
WITH AN ARRAY OF RF COILS

Response to Paper No.: 3

AMENDMENT

Mail Stop Non-Fee Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 2213-1450

Sir:

In response to the Office Action mailed on December 03, 2003, Applicant  
respectfully requests consideration of the following remarks:

Remarks begin on page 2 of this correspondence.

To FAX: 703 872 9306

I hereby certify that this paper is being  
Facsimile transmitted to the Patent and  
Trademark Office on the date shown below.

3/3/04

(Date of Transmission)

Signature

3/3/04

(Date of Signature)

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor: Zhu et al.

Serial No.: 09/838,634

Group Art Unit: 3742

Filed: April 19, 2001

Examiner: Robinson

Title: METHOD FOR MR IMAGING  
WITH AN ARRAY OF RF COILS

Response to Paper No.: 3

AMENDMENT

Mail Stop Non-Fee Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 2213-1450

Sir:

In response to the Office Action mailed on December 03, 2003, Applicant respectfully requests consideration of the following remarks:

Remarks begin on page 2 of this correspondence.

Remarks

Applicant has carefully considered the Office Action mailed on December 03, 2003. Of the pending claims, the Examiner rejected claims 1-11 and 14-16, but indicated that claims 12 and 13 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 1-16 remain pending in the present patent application. In view of the following remarks, Applicant requests further examination and reconsideration of the present patent application.

The Examiner rejected claims 1-11 and 14-16 under 35 USC 103(a) as being unpatentable over Lauterbur et al, (hereinafter Lauterbur) US patent 6,088,611, in view of Johnson et al., (hereinafter Johnson) US patent 6,526,306. Applicant respectfully traverses the rejection of claims 1-11 and 14-16 under 35 USC 103(a) over Lauterbur in view of Johnson. It is respectfully submitted that the Applicant's invention as recited in independent claims 1, 7 and 14 and claims depending therefrom, is not obvious in view of the applied references, taken individually or in combination. Applicant further submits that the applied references fail to teach or suggest means for combining aliased regional images by weighting and summing, such that the image of the region of interest is substantially free of aliasing artifacts, as described by Applicant's invention recited in the independent claims 1, 7 and 14.

Applicant respectfully submits that the applied references do not teach, suggest, or disclose (either individually or collectively) the independent claims 1, 7 and 14 recitation of "weighting and summing said respective regional images to produce said image of said region of interest."

Lauterbur discloses a method for imaging time-varying objects. In particular, the Lauterbur invention addresses the motion problem associated with imaging of time-varying, dynamic objects such as a beating heart or abdomen. A method is provided to remove image artifacts (ghosts and blurrings) caused by rigid-body or non-rigid-body, periodic or a periodic object motion. Lauterbur does not disclose means for weighting

and summing respective regional images to produce an image of a region of interest. Applicant has carefully reviewed the material in Figures 4, 10, 11, 12 and col. 1-3 of Lauterbur cited by the Examiner, and submits that these sections fail to disclose or suggest means for weighting and summing respective regional images to produce an image of a region of interest. Instead the material in Figures 4, 10, 11, 12 and col. 1-3 discusses a method to remove image artifacts caused by object motion and discloses a generalized harmonic model to eliminate such artifacts.

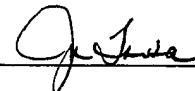
Further there is no motivation in Lauterbur to combine it with Johnson. Johnson discloses an intravaginal radio frequency imaging device for intravaginal monitoring to assess the function, morphology, and exercise-induced metabolic and biochemical changes in the pelvic floor muscles surrounding the vaginal vault. Johnson also does not disclose means for weighting and summing respective regional images to produce an image of a region of interest. Therefore, Johnson (either alone or in combination with Lauterbur) does not disclose, teach or suggest disclose means for weighting and summing respective regional images to produce an image of a region of interest.

Obviousness cannot be established absent a teaching or suggestion in the prior art to produce the claimed invention. For a *prima facie* case of obviousness, the Examiner must set forth the differences in the claim over the applied references, set forth the proposed modification of the references, which would be necessary to arrive at the claimed subject matter, and explain why the proposed modification would be obvious. It is well-established law that the mere fact that references may be combined or modified does not render the resultant modification or combination obvious unless the prior art suggests the desirability of the modification or combination. As stated above, nowhere do the applied references teach, suggest or disclose means for weighting and summing respective regional images to produce an image of a region of interest. By providing means for combining aliased regional images by "weighting and summing" respective regional images, the Applicant's invention creates an image of a region of interest that is substantially free of aliasing artifacts.

Applicant interprets the Office Action as stating that the proposed modification is to use under sampled data sets as taught by Johnson in the invention of Lauterbur to improve spatial resolution without concern for fold over. However, Applicant respectfully submits that nowhere do the applied references discuss the challenges associated with reconstructing image data from an array of RF coils to produce an image of a region of interest, wherein the reconstructed image is typically characterized by distinctive artifacts, known as aliasing artifacts, and the techniques to overcome them. Further the applied references merely address a technique for high resolution imaging of moving objects and an intravaginal imaging device. Thus, Applicant submits that the Examiner has failed to provide a basis in the art for combining the applied references that would support a *prima facie* case of obviousness. Accordingly, Applicant respectfully submits that the claimed invention, as recited in now presumably allowable independent claims 1, 7 and 14 define allowable subject matter over the applied art. Withdrawal of the rejections is respectfully requested, and allowance of claims 1, 7 and 14 is respectfully solicited. Claims 2-6, 8-13 and 15-16 depend directly or indirectly from claims 1, 7 and 14 and are therefore similarly patentable by dependency.

Should the Examiner believe that anything further is needed to place the application in even better condition for allowance, the Examiner is requested to contact Applicant's undersigned representative at the telephone number below.

Respectfully submitted,



Jean Testa  
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Feb. 3, 2004  
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Building K1, Room 3A62  
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